

State of Louisiana Department of Natural Resources Coastal Engineering Division

2005/2006 Annual Inspection Report

for

BARATARIA LANDBRIDGE SHORELINE PROTECTION PROJECT – Construction Units No. 1, 2 & 3

State Project Number BA-27 Priority Project List 7 & 9

August 17, 2006 Jefferson and Lafourche Parishes

Prepared by:

Brian J. Babin, P.E. LDNR/Coastal Restoration and Management Thibodaux Field Office 1440 Tiger Drive, Suite B Thibodaux, La. 70301

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I. Introduction

The Barataria Landbridge Shoreline Protection Project (Phase 1, 2 & 3 – Construction Unit Nos.1, 2 and 3) is located approximately 14 miles south of the town of Lafitte in both Jefferson and Lafourche Parishes, Louisiana. The project boundaries of Phase 1 & 2 encompass approximately 4,862 acres of intermediate marsh, brackish marsh, upland shrub, and open water habitat. The Barataria Basin Landbridge Shoreline Protection Project (Phase 1 & 2) is divided into two (2) separate construction units. Construction Unit No.1 consists of test sections along the shoreline of the west bank of Bayou Perot and the southeast bank of Bayou Rigolettes. Construction Unit No.2 consists of 6,403 linear feet of shoreline protection along the east and south bank of the Bayou Rigolettes near the Harvey Cutoff Canal (O&M Plan, 2002).

Construction Unit No. 1 (CU#1) is a 5 year demonstration project completed in July 2001 and consists of 1,600 linear feet of shoreline protection along the west bank of Bayou Perot and 1,600 linear feet of shoreline protection along the east bank of Bayou Rigolettes. CU#1 utilizes various methods of shoreline protection to reduce shoreline erosion along the existing banks of the Bayous Perot and Rigolettes and to assess the economic feasibility of constructing future projects within the Barataria Landbridge Project (see Attachment I)(O&M Plan, 2002).

Construction Unit No. 2 was completed in October 2002 and consists of approximately 6,403 linear feet of shoreline protection (rock dike) parallel to the southeast shoreline of Bayou Rigolettes and Bayou Perot west of the Harvey Cutoff Canal (see Attachment I) (O&M Plan, 2002).

Construction Unit 3 of Phase 3 was completed in May 2004 and consists of approximately 10,865 linear feet of rock dike along the northeast shoreline of Little Lake and the south bank of Bayous Rigolettes and Perot (see Attachment I) (O&M Plan, 2005)

Construction of the Barataria Basin Landbridge Project (Phases 1, 2 & 3 - Construction Units No. 1 & 2 and 3) was authorized by Section 303(a) of Title III Public Law 101-646, the Coastal Wetlands Planning Protection and Restoration Act (CWPPRA) enacted on November 29, 1990, as amended. Phase 1 (CU #1&2) of the Barataria Landbridge Project was approved on the seventh (7th) priority project List and Phase 3 (CU#.3) was approved on the ninth (9th) priority project list (O&M Plan, 2002 & 2005)

In 2003, the CWPPRA Task Force determined that, due to LDNR being the responsible party for the operation and maintenance phase of the vast majority of the CWPPRA projects, CWPPRA authorized LDNR, through SPR 15950, to be the responsible party for all Post Storm/ Hurricane Assessments. After Hurricanes Katrina and Rita, every project appeared to be impacted by the storms; therefore, LDNR determined that all projects should be assessed for damages (Broussard, 2006). The inspection included a visual observation of all constructed project features and recommended possible corrective actions should maintenance be required. The annual inspection of all construction units of the Barataria Landbridge

Project usually occurs in the first quarter (March/ April) of each year; however, due to the devastation and destruction caused by Hurricanes Katrina and Rita, a damage assessment was performed immediately following the storms in October 2005. With concurrence from the federal partner (Natural Resources Conservation Service), LDNR has decided not to perform the field inspection scheduled for March 2006 but rather use the field information gathered on the damage assessment field trip in October 2005 to produce the 2006 annual inspection report.

II. Inspection Purpose and Procedure

The purpose of the annual inspection of the Barataria Landbridge Shoreline Protection (Phase 1, 2 & 3) project is to evaluate the constructed project features, identify any deficiencies, prepare a report detailing the condition of such features and to recommend corrective actions needed, if any (O&M Plan, 2002 & 2005). Should it be determined that corrective actions are needed, LDNR shall provide in report form, a detailed cost estimate for engineering, design, supervision, inspection, construction contingencies, and an assessment of the urgency of such repairs (O&M Plan, 2002 & 2005). The inspection report also contains a summary of maintenance projects undertaken since the constructed features were completed and an estimated project budget for the upcoming three (3) years for operation and maintenance and rehabilitation. The three (3) year projected operation and maintenance budget based on the outcome of this inspection is shown in Attachment II. A summary of past operation and maintenance projects undertaken since the completion of the Barataria Landbridge Shoreline Protection (Phase 1 through 3) project are outlined in Section IV of this report.

Immediately following Hurricanes Katrina and Rita in 2005, the Louisiana Department of Natural Resources (LDNR) mandated that damage assessments of all CWPPRA projects be performed to determine the extent of damage and maintenance needs, if any. On October 4, 2005, an inspection of the Barataria Landbridge Shoreline Protection (Phase 1, 2 & 3) was completed. Participants in the damage assessments included representatives from LDNR (Brian Babin and Shane Triche) and the Natural Resources Conservation Service (Brad Sticker). The attendees met at the Clovelly Canal Public Boat Launch. The inspection began at approximately 8:45 a.m. and ended at 11:30 a.m. Within this time frame, constructed features of the GIWW to Clovelly Project (BA-02) located on the southern banks of Bayou Rigolettes, Bayou Perot and the northern bank of Little Lake was also inspected.

The field inspection included a complete visual inspection of the entire project site. Staff gauge readings, where available, were used to determine approximate elevations of water, rock dikes and other project features. A handheld GPS unit, in some instances, was used to mark the locations of low areas along the rock structures that may require corrective action or periodic visual inspection on future site visits Field Inspection notes were completed in the field to document and record measurements and deficiencies (Attachment III).

III. Project Description and History

The Barataria Basin Landbridge Shoreline Protection Project area is located within the Barataria Basin, which is bounded on the north and east by the Mississippi River, on the west by Bayou Lafourche, and on the south by the Gulf of Mexico. The upper portion of the Barataria Basin is largely a freshwater-dominated system of natural levee ridges, baldcypress, water tupelo swamps, and fresh marsh habitats. The lower portion of the basin is dominated by marine/tidal processes, with barrier islands, saline marsh, brackish marshs, tidal channels, and large bays and lakes. Historically, a small meandering Bayou Perot, and the longer, narrower Bayou Dupont, Bayou Barataria and Bayou Villars channels provided limited hydrologic connection between the upper and lower basin. The hydrologic connections between the upper and lower basin are much greater today due to the Barataria Waterway, Bayou Segnette Waterway, Harvey Cutoff, and substantial erosion and interior marsh loss along and between the now-enlarged Bayou Perot and Bayou Rigolettes. Fortunately, there still exists a landmass, deterioration that extends southwest to northeast across the basin, roughly between Lake Salvador and Little Lake. This landmass can be referred to as the "Barataria Basin Landbridge." The shoreline protection project aims to protect the functional integrity of this critical area of the Barataria Basin (Monitoring Plan; October 2003)

Major factors contributing to the excessive marsh loss in this area included the elimination of overbank flooding of the Mississippi River; closure of Bayou Lafourche and the Mississippi River; dredging of the Gulf Intracoastal Waterway, Barataria Waterway, Harvey Cutoff Canal, and oilfield access channels; physical erosion due to wind, boat wake, and tidal energy; subsidence, and sea level rise (Monitoring Plan; October 2003).

Project Objective

The project objective for the Barataria Basin Landbridge Project as a whole is to provide 76,000 linear feet of shoreline protection to areas along the west and south banks of Bayou Perot, the east and south banks of Bayou Rigolettes, the north and northeast banks of Little Lake, and the east and west banks of the Harvey Cutoff Canal in order to reduce or eliminate shoreline/bankline erosion of the Barataria Basin Landbridge (Monitoring Plan; 2003).

Specific Goal

Decrease the mean rate of shoreline/bankline erosion in subsections of the project area stratified according to historical erosion rates along Bayous Perot and Rigolettes, Little Lake, and Harvey Cutoff. This shall be accomplished through the use of one or more of the following shoreline protection techniques:

- a) foreshore rock dike above spoil material
- b) foreshore rock dike with lightweight core material

- c) composite rock dike using furrow method
- d) pre-stressed concrete pile and panel wall

Construction Unit No.1

Construction Unit No.1 of the Barataria Landbridge Shoreline Protection Project consists of the installation of 1,600 linear ft. of shoreline protection along the west bank of Bayou Perot and 1,600 linear ft. of shoreline protection along the southeast bank of Bayou Rigolettes. The 1,600 linear ft. of shoreline protection at each location includes four different types of shoreline protection treatments measuring 400 feet in length, spaced 50 to 75 feet apart. The following types of shoreline protection treatments constructed under Construction Unit No.1 were installed at each site (O&M Plan, 2002).

- Section A and A1 consisted of 200 linear foot of rock dike and 200 linear ft. of rock dike placed on freshly excavated spoil material.
- Section B consisted of 400 linear ft. of composite rock dike with a lightweight aggregate core encapsulated in geotextile fabric.
- Section C consisted of 400 linear ft. of composite rock dike using a furrow method to place and encapsulate the lightweight aggregate core.
- Section D consisted of 400 linear ft. of pre-stressed concrete pile and panel wall.

The purpose of the Barataria Landbridge Shoreline Protection Project (Phase I – Construction Unit No.1) is to evaluate several methods of shoreline protection to reduce and minimize shoreline/bank line erosion along Bayou Perot and Bayou Rigolettes. The performance of these test sections will be monitoring and assessed to determine the appropriate construction techniques and economic feasibility for constructing future projects within the Barataria Landbridge area.

Construction Unit No.1 of the Barataria Landbridge Project is a demonstration project with an anticipated project life of 5 years, which began in July 2001.

Construction Unit No.2

Construction Unit No.2 of the Barataria Landbrige Shoreline Protection Project consist of shoreline protection of a 2,712 linear foot rock dike on the west side of an existing oil field canal opening and 3,691 linear foot rock dike from the east bank of this existing oil field canal to the opening of the Harvey Cutoff Canal. The rock dike was constructed to an elevation of +3.5' NAVD with a 2.0 ft. wide crest and 2:1 side slopes (O&M Plan, 2002).

The purpose of Barataria Landbridge Shoreline Protection Project (Construction Unit No.2) is to reduce erosion and marsh loss along the shoreline located at the southern end of Bayou Rigolettes and Bayou Perot west of the Harvey Cutoff Canal. Major factors contributing to erosion and marsh loss in this area is physical erosion due to wind, boat-wake, tidal energy, subsidence and sea level rise (Monitoring Plan; 2003).

Construction Unit No.2 of the Barataria Landbridge Project has a twenty (20 year) economic life, which began in October 2002.

Construction Unit No.3

Construction Unit No.3 consists of approximately 10,865 linear feet of rock dike along the northeast shoreline of Little Lake and south bank of Bayou Rigolettes and Bayou Perot. The rock rip rap structure was constructed to an elevation of +3.5' NAVD with a 4' wide top width and 3:1 side slopes. The rock dike was constructed over a geotextile fabric. Two (2) fish dips were constructed at Sta. 43+05 and Sta. 74+79 consisting of a 60' wide (bottom width) opening in the rock dike to allow for marine organism access. Warning signs were installed at both fish dips and at the entrance of an existing oilfield canal plugged with rock riprap near Sta. 96+00 (O&M Plan, 2005).

Construction Unit No.3 of the Barataria Landbridge Project has a twenty (20 year) economic life which began in May 2004.

IV. Summary of Past Operation and Maintenance Projects

Construction Unit No. 1 is a demonstration project which does not include provisions in the cost-share agreement for operation and maintenance. Since the completion of Construction Unit No.2 and No.3, no maintenance has been required. However, NRCS is presently working on the design of future construction units which will incorporate the maintenance and/or replacement of Construction Unit No.1 project features which have settled or failed.

V. Inspection Results

General Observations:

From debris noted on top of the rock dike and behind the structure on the marsh side, it is apparent that the rock dikes (CU# 1, 2&3) was over-toped during the storm. Marsh grass throughout the entire area was burnt due to high salinities from Hurricane Rita's storm surge.

No staff gauges were available to record water levels at the time of the inspection. However, the gage located along Clovelly Canal on the west side of Little Lake indicated that the water level was approximately 2.25' NAVD at 8:30 a.m.

BA-27 -Construction Unit No. 1 (CU#1)

Inspection Results:

The damage assessment of CU#1 began at approximately 10:00 a.m. on the test sections located along the west bank of Bayou Perot. Due to time constraints, the test sections located along Bayou Rigolettes were not assessed. The damage assessment of project features along Bayou Perot included a visual inspection of the pre-cast concrete pile and wall only. The rock

dike sections of CU#1 were submerged due to the high water levels and not visible at the time of the inspection. Several sections of the concrete wall panel had experienced movement and shifting between the concrete piles due to deterioration of the grout material in the pile notch and possible chipping of the bearing plate. The damage to concrete pile panels are due to normal wearing and not a result of Hurricane Rita. Below are damage assessment photos of the concrete pile sections along Bayou Perot:



Land Bridge CU#1 – photo of concrete pile and wall test section along the west bank of Bayou Perot.



Land Bridge CU#1 – photo of concrete panel wall panel that shifted downward on both sides.

BA-27 -Construction Unit No. 2 (CU#2)

Inspection Results:

The damage assessment of CU#2 began at approximately 9:30 a.m. on the northeast bank of Little Lake near Sta. -0+42 and ended along the south bank of Bayou Rigolettes west of the Harvey Cutoff Canal near Sta. 36+83. From a visual inspection of the rock dike of CU#2, it appears that the dike was in good condition with no noticeable displacement or movement of rip rap due to Hurricane Rita. As in previous inspections, we did note several low areas along the dike which have settled since construction and will require possible maintenance in the future. The earthen tie-ins on both the east and west reach of the project were also in good condition with no signs of breaching or erosion. Other than the burnt marsh from high salinity levels resulting from the storm surge, we did not observe any significant marsh erosion behind the rock dike.



Land Bridge CU#2 – photo of earthen/bank tie-in along the northeast bank of Little Lake at Sta. -0+42.



Land Bridge CU#2 – photo of rock dike along the southern bank of Bayou Perot.



Land Bridge CU#2 – photo of rock dike tie-in to existing marsh at the mouth of the Harvey Cutoff Canal.

BA-27 -Construction Unit No. 3 (CU#3)

Inspection Results:

The inspection of CU#3 began at approximately 8:45 a.m. on the south end of the project area near Sta. 108+65 and proceeded northward to the mouth of Bayou Perot and northeast bank of Little Lake to the beginning of the project (Sta. 0+00). From a visual inspection of the rock dike of CU#3, it appeared that the dike was in very good condition with no displacement or movement of rip rap resulting from the storm. The rock dike to marsh tie-ins were also in good condition with no breaches or washouts present. Other than the burnt marsh mentioned in the general observations, we did not notice any significant erosion of the shoreline behind the rock dike. Below are photos from the damage assessment of CU#3.



Land Bridge CU#3 – photo of rock to marsh tie-in located at the southern end of the project near Sta. 108+65.



Land Bridge CU#3 – photo of rock to marsh tie-in located at the northern end of the project near Sta. 0+00.



Land Bridge CU#3 – photo of rock dike along the east bank of Little Lake near fish dip at Sta.74+79.

V. Conclusions and Recommendations

After an inspection of all the project features associated with the Barataria Land Bridge Shoreline Protection Project (BA-27 – CU# 1, 2, & 3), we concluded that no significant damage caused by Hurricanes Katrina and Rita other than the burnt marsh noted in the inspection results. Therefore, no corrective actions or request for FEMA (Federal Emergency Management Agency) assistance is necessary as a result this annual inspection.

References:

Hymel, Melissa, August 2003. *Monitoring Plan*, Barataria Basin Landbridge Shoreline Protection (Phases 1, 2 & 3), Louisiana Department of Natural Resources, Coastal Restoration Division, 11 pp.

Broussard, M. Garrett, February 2006. *Damage Assessment Report for Hurricanes Katrina and Rita*, Louisiana Department of Natural Resources, Coastal Engineering Division, 5 pp.

LDNR, July 2002. *Operation, Maintenance and Rehabilitation Plan, BA-27* Barataria Landbridge Shoreline Protection Phases 1 & 2 (Construction Units No. 1 & 2), Louisiana Department of Natural Resources, Coastal Engineering Division.

LDNR, February 2005. *Operation, Maintenance and Rehabilitation Plan,* BA-27c Barataria Landbridge Shoreline Protection Phase 3 (Construction Unit No. 3), Louisiana Department of Natural Resources, Coastal Engineering Division.

Attachment I

Project Features Map



BA-27 BARATARIA LANDBRIDGE SHORELINE PROTECTION PROJECT PHASE I - CONSTRUCTION UNIT NO.1

Data Source: Louisiana Department of Natural Resources Coastal Restoration Division Engineering Section Thibodaux Field Office

1998 DOQQ's

Date: July 26, 2002

Map ID: 2002-TFO-087

LEGEND:

- Section A & A1 200 linear ft. rock dike / 200 linear ft, rock dike above geotextile fabric.
- Section B 400 linear ft. composite rock dike.
- Section C 400 linear ft. composite rock dike / furrow method.
- Section D 400 linear ft. concrete pile and panel wall.





BA-27 BARATARIA LANDBRIDGE SHORELINE PROTECTION PROJECT PHASE I &2 - CONSTRUCTION UNIT NO.2





Attachment II

Three Year Budge Projections and Worksheets

Structure Operation Administration Naintenance/Rehabilitation	O & M Manager Brian Babin 2006/2007 \$ 5,250.00	Federal Sponsor NRCS 2007/2008 \$ 5,407.00 \$ 2,000.00	Prepared By Brian Babin 2008/2009 \$ 5,569.00 \$ - \$ - -
Maintenance Inspection Structure Operation Administration Maintenance/Rehabilitation	Brian Babin 2006/2007	NRCS 2007/2008 \$ 5,407.00	Brian Babin 2008/2009 \$ 5,569.00
Maintenance Inspection Structure Operation Administration Maintenance/Rehabilitation 06/07 Description: E&D		\$ 5,407.00	\$ 5,569.00
Structure Operation Administration Maintenance/Rehabilitation 16/07 Description:		\$ 5,407.00	\$ 5,569.00
Structure Operation Administration Maintenance/Rehabilitation 06/07 Description:	\$ 5,250.00		
Administration Maintenance/Rehabilitation 16/07 Description:		\$ 2,000.00	\$-
Maintenance/Rehabilitation		\$ 2,000.00	\$ -
06/07 Description:			
F&D			
F&D			
Construction			
Construction Oversight			
Sub Total - Maint. And Rehab.	\$ -		
)7/08 Description: Structural Ass	sessment- survey profile a	and cross sections of CU#	2 rock dike.
E&D		\$ 11,520.00	
Construction		\$-	
Construction Oversight		\$-	
	Sub Total - Maint. And Rehab.	\$ 11,520.00	
8/09 Description:			
E&D			
Construction			\$-
Construction Oversight			\$-
		Sub Total - Maint. And Rehab.	\$-
	2006/2007	2007/2008	2008/2009
Annual O&M Budgets	\$ 5,250.00	\$ 18,927.00	\$ 5,569.00
O &M Budget (3 yr To			<u>\$29,746.00</u>
Unexpended O & M F Remaining O & M Bu			<u>\$1,500,183.17</u> <u>\$1,470,437.17</u>

OPERATIONS & MAINTENANCE BUDGET WORKSHEET

Project: <u>Barataria Landbridge Shoreline Protection (Phase 1 & 2 Construction Units</u> <u>1&2)</u>

FY 06/07 -

Administration O&M Inspection & Report Operation: Maintenance: E&D: Construction: Construction Oversight: Operation and Maintenance Asss Annual Inspection and Report (\$3,		0 0 0 0 0 0	\$ 0 \$ 5,250 \$ 0 \$ 0		
FY 07/08 -					
Administration\$ 2,000 $O\&M$ Inspection & Report\$ 5,407Operation:\$ 0Maintenance:\$ 0E&D:\$ 0Construction:\$ 0Construction:\$ 0Construction Oversight:\$ 0Operation and Maintenance Assumptions:Annual Inspection and Report (\$3,000)Structural Assessment Survey – rock dike CU#2(5 days @ \$1,420/day =\$7,100)(Process Data and Prepare Deliverables - \$2,500)7,100 + 2,500 = 9,600 x .20 Contingency = 11,520DNR/NRCS Administration: \$2,000					
FY 08/09 -					
Administration O&M Inspection & Report Operation: Maintenance: E&D:	\$	0	\$ 0 \$ 5,569 \$ 0 \$ 0		

Construction Oversight: **Operation and Maintenance Assumptions:**

Annual Inspection and Report (\$3,000)

Construction:

0

0

\$

\$

Three-Year O	perations & Mainte	nance Budgets 07/	01/2006 - 06/30/09
Project Manager	O & M Manager Brian Babin	Federal Sponsor NRCS	Prepared By Brian Babin
	2006/2007	2007/2008	2008/2009
Maintenance Inspection	\$ 5,250.00	\$ 5,407.00	\$ 5,569.00
Structure Operation			
Administration		\$ 2,000.00	\$-
Maintenance/Rehabilitation			
06/07 Description:			
			1
E&D			
Construction			
Construction Oversight			
Sub Total - Maint, And Rehab.			
ວເເບັ I Otal - Maint. And Rehab.	ψ -		
07/08 Description: Structural As	sessment of CU#3 - profil	e and cross-sections	
E&D		\$ 8,616.00	
Construction		\$ -	
Construction Oversight		\$ -	
constant of orongin	Sub Total - Maint. And Rehab.	\$ 8,616.00	
	Sub Total - Maint. And Renab.	φ 0,010.00	
08/09 Description:			
E&D			
Construction			\$-
Construction Oversight			\$-
		Sub Total - Maint. And Rehab.	\$-
	2006/2007	2007/2008	2008/2000
Annual OSM Budgata	2006/2007 \$ 5,250.00	\$ 16,023.00	2008/2009 \$ 5,569.00
Annual O&M Budgets	\$ 5,250.00	φ 10,023.00	\$ 5,569.00
O &M Budget (3 yr T			<u>\$26,842.00</u>
Unexpended O & M I			<u>(\$1,564.50</u>)
	<u>Idget (Projected)</u>		<u>\$28,406.50</u>

OPERATIONS & MAINTENANCE BUDGET WORKSHEET

Project: <u>Barataria Landbridge Shoreline Protection (Ph. 3 - Construction Units 3)</u>

FY 06/07 -

Administration			\$	0			
O&M Inspection & Report	\$	5,250					
Operation:			\$	0			
Maintenance:	+		\$	0			
E&D:	\$	0					
Construction:	\$	0					
Construction Oversight:	\$	0					
Operation and Maintenance Assu	-	n:					
Annual Inspection and Report (\$3,000)							
FY 07/08 –							
Administration			\$	2,000			
O&M Inspection & Report			\$	5,407			
Operation:			\$	0			
Maintenance:			\$	8,616			
E&D:	\$	0					
Construction:	\$	0					
Construction Oversight:	\$	0					
Operation and Maintenance Assumptions:							
Annual Inspection and Report (\$3,000)							
Structural Assessment Survey – roc	k dike	CU#3					
(4 days @ \$1,420/day = \$5,680)							
(Process Data and Prepare Deliverables - \$1,500)							
5,680 + 1,500 = 7,180 x .20 cont	ingenc	y = 8,616					
DNR/NRCS Administration: \$2,00	0						
EX7.00/00							
FY 08/09 -							
Administration			\$	0			
O&M Inspection & Report			\$	5,569			
Operation:			\$	0			
Maintenance:			\$	0			
E&D:	\$	0	Ŧ	-			
Construction:	\$	0					
Construction Oversight:	\$	0					
		-					

Operation and Maintenance Assumptions:

Annual Inspection and Report (\$3,000)

Attachment III

Inspection Field Notes

BOOAM ROOL Landia October 4, 2005 R. Jottrion R. BALIN S. Triche CONTENTS B. Roberty D. Dearmond REFERENCE WINDY / P. Cloudy DATE PAGE Sticker . Rita Danage Acresment BA-Z Elev: 2.25 NAVD (Churly Cann inche and inches BA-27 Briatoria Landbridge RADZ Strudic 14H 0.0052 roch displaced on routh S. do of barge Bay (light marked on routh ride ۲, . Tetaj BA-27 CU# 3 n stangings and the Begri inspection on south cast ingend im usching worthand. South tix in to baste to is good conditions w/ No apparent washout on crossions. Noch devotions appears To be at approximately 3.5 to tio" Tuterior macri locks burnt fra Satt (high Selw. ty) diring storm 660.500

2 No. k end of Conz - tre-in appears to be in good condition of N. apparent erosion or wadouts Eller: = = = . 5! MARD CV=2 - Burataria Landbridge South end tive in gould Condition (read 2) north end (read 2) good condition (Read D) Harry CH off canac unie Setempi fain to Marsh this and ending guidity. BA 12. Etwent Clouly Struckine # 43 - appears to 4 in good Service of the servic Coult tim - No apparent damage " storm. Breach when an ton last inspection appear to have Our group and work Visitle Arvilia #7 - rock Ecchion under und at time of inspection no Notriedble brighter on cite sile of Fracture £.,